What Happens to Recycled "Tin" Cans?

A Fact Sheet from the Solid Waste & Financial Assistance Program

Identification and Sorting

The can we commonly call tin is really more than 99 per cent steel with a thin plating of tin. The tin helps protect the flavor of food in the can. Because it is made of steel, it is magnetic and all you need is a small magnet to tell it from an aluminum can. If your local recycling center accepts tin-plated steel cans, they will probably ask that paper labels be removed and the cans be flattened. Reducing the space these cans take up is important to a recycling center, and your cooperation will help them operate as smoothly as possible.

Curbside collection programs might also require cans to be prepared this way. The more quickly the bins in the curbside trucks fill up, the more trips need to be made back to unload at a materials recovery facility (MRF, pronounced "murf"). By flattening your cans, you not only make the job easier for curbside collectors, but you help reduce air pollution as well. Most curbside programs take both aluminum and tin-plated steel cans in the same bin. They will be separated (probably through the use of a large magnet) at the MRF.

Processing and Remanufacture

Whether from the MRF or your recycling center, baled or loose loads of steel cans will be sold to a scrap metal broker. A broker will be able to gather large amounts of cans and other scrap steel from various sources, process it for delivery, and find an industrial plant that will buy it as raw material. This buyer might be a local end-user of scrap steel, such as a foundry, or a distant steel mill. Cans destined for these facilities usually need to be delivered in compact, high-density bundles.

Scrap fed into the furnaces of a mill or a foundry might be mixed with new steel in various proportions. This would depend partly on the capability of the equipment and partly on the product being made. The mix of tin-plated cans with pure steel scrap must also be calculated beforehand. Too high a proportion of tin will have a negative effect on the quality of the finished product, while a somewhat lower proportion might actually enhance the steel. More and more, mills and foundries are finding tin-plated steel cans to be useful in their manufacturing operations.

Detinning

Another possible buyer for a broker's shipment of steel cans would be a detinning company. Depending on its eventual use, a shipment of used tin-plated steel cans may or may not have to be detinned before its arrival at a steel mill. If intended for use in high-grade products, the batch must either be detinned or mixed with large quantities of pure steel. Only low grade products such as rebar can be made wholly from steel cans that retain their tin plating.

Cans arrive at a detinner either loose, shredded, or loosely baled. (The density of a bale need only be about half what a mill or foundry would require.) Steel cans are detinned by a combination of chemical and electrical processes. First, they are submerged in a chemical bath. The tin plating dissolves into this solution, and the remaining solid steel is easily removed from the tank, rinsed, and prepared for shipment to a mill.

After the solution containing the tin has been filtered and its chemical make-up has been modified, electricity is used to condense the tin onto plates. As these plates have a higher melting point than tin, the layer of tin can then be melted off and poured into ingots. One good market for these ingots of nearly pure tin is the steel can manufacturing industry.

At a steel mill, detinned steel from cans forms only a small portion of the scrap steel received. Scrap steel is used in the production of a great variety of products: automobiles, bridges, washing machines or even steel sheet that can be used to make new cans.

For More Information, or Special Accommodation Needs

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If you have special accommodation needs, contact **1-800-RECYCLE** (VOICE) or (360) 407-6006 (TDD).

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